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09/668,348	09/25/2000	Masaki Nakano	040356/0316	1908

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EXAMINER

LAM, THANH

ART UNIT

PAPER NUMBER

2834

DATE MAILED: 05/21/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
09/668,348

Applicant(s)
Nakano

Examiner
Thanh Lam

Art Unit
2834



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Mar 4, 2002
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ 6) ☐ Other: _____

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DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3, 7-8, 11, and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koide et al. (Pn. 5,936,312) in view of Kolomeitsev (pn. 5,668,430).

Koide et al. disclose a motor/generator comprising: a first rotation shaft (156); a first rotor (132) rotating with the first rotation shaft and having a first number of magnetic poles (135) that form a first magnetic field; a second rotation shaft (126) rotating relative to the first rotation shaft and supported co-axially with the first rotation shaft; a second rotor (142) rotating with the second rotation shaft and having a second number of magnetic poles (145) that form a second magnetic field, the first rotor and the second rotor being disposed in series along the first rotation shaft; a stator (133) provided with coils (134) that generate a first rotating magnetic field in synchronism with the first magnetic field by application of a first alternating current, and generate a second rotating magnetic field in synchronism with the second magnetic field by application of a second alternating current; and a current control device (180) that supplies a composite current comprising the first alternating current and the second alternating current to

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the coils. However, Koide et al. do not disclose the first number of magnetic poles of first rotor differ from the second number of magnetic poles of the second rotor.

Kolomeitsev discloses a first number (32, fig. 2) of magnetic poles of the first rotor differ from a second number (each center teeth and side teeth is counted as a pole) of magnetic poles of the second rotor (col. 4, lines 25-27).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the first and second rotors of Koide et al. with the first number of magnetic poles of the first rotor differ from the second number of magnetic poles of the second rotor as taught by Kolomeitsev (col. 4, lines 25-27).

Regarding claim 2, Koide et al. disclose the stator is disposed facing an outer periphery of the first rotor and the second rotor.

Regarding claim 3, the proposal combination of Koide et al. and Kolomeitsev disclose the stator is provided with a plurality of core units separated in a peripheral direction, each core unit is provided with a first core facing an outer periphery of the first rotor and a second core facing an outer periphery of the second rotor and magnetically connected with the first core, and a magnetic reluctance between adjacent core units is set to be greater than a magnetic reluctance between the first core and the second core of the same core unit.

Regarding claims 7 and 8, Koide et al. disclose each of the coils is wound on the first and second core of each core unit.

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Regarding claim 11, Kolomeitsev discloses the stator comprises a plurality of cores (24a-24b) disposed adjacent to one another, each core is provided with an inner peripheral part and an outer peripheral part, the outer peripheral part being in contact with an outer peripheral part of an adjacent core, the inner peripheral part projecting inward, and each of the coils (22) being wound on the inner peripheral part.

Regarding claim 15, Koide et al. disclose the first rotation shaft (56) penetrates the second rotation shaft (22), and the second rotation shaft is supported by a plurality of bearings (49) so as to be free to rotate relative to the first rotation shaft.

Regarding 16, Koide et al. disclose a case (45) accommodating the stator, a bearing supporting the first rotation shaft on the case and a bearing (49) supporting the second rotation shaft on the case.

3. Claims 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koide et al. in view of Kolomeitsev as applied to claim 1 above, and further in view of Satomi (pn. 5,418,413).

Koide et al. and Kolomeitsev disclose every aspect of claimed invention except for the first stator cores are equal to the second stator cores.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the first and second stator cores of Koide et al. being equal in number of cores as taught by Satomi in order to provide the cores with ease to assembly.

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Regarding claim 13, Koide et al. (Fig. 20-21) disclose the first coils and the second coils are connected in parallel to the current control device (180).

Regarding claim 14, Kolomeitsev discloses the first coils and second coils are connected in series (col. 3, lines 40-42) to the current control device.

4. Claims 17-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koide et al. in view of Kolomeitsev as applied to claim 1 above, and further in view of Satake (pn. 4,785,213).

Koide et al. and Kolomeitsev disclose every aspect of claimed invention except for a first stator provided with a third number of first coils, a second stator provided with a fourth number of second coils, the third number and the fourth number being equal.

Satake discloses a first stator(25) provided with a third number (b, fig. Fig. 4) of first coils (23), a second stator (24) provided with a fourth number (b, fig. 4) of second coils (22), the third number and the fourth number being equal.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the first and second stator coils of Koide et al. and replace the third number coils and the fourth number coils being equal as taught by Satake to provide the stator coils with excellent torque characteristic and efficiency.

Regarding claim 18, Satake discloses the first coils and the second coils are connected in series to the current control device (a-b three phase of fig. 4).

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Regarding claim 19, Koide et al. disclose first coils and the second coils are connected in parallel to the current control device (180).

Regarding claim 20, Koide et al. disclose the stator is provided with a plurality of core units separated in a peripheral direction, each core unit is provided with a first core facing an outer periphery of the first rotor and a second core facing an outer periphery of the second rotor and magnetically connected with the first core, each core unit is fixed on an inner periphery of a case that is made of a nonmagnetic material and is separated from each other by a wall made of a non-magnetic material as a part of the case.

Regarding claim 21, Koide et al. disclose a needle bearing coupled to the second rotation shaft and to the first rotation shaft.

Response to Arguments

5. Applicant's arguments filed 3/4/2002 have been fully considered but they are not persuasive.

Applicant argument that the Koide reference does not teach a single current control that supplies a composite current comprising the first and second current to the coils.

The Examiner submits that the koide reference disclose a current control device (180 is a single current device shown on fig. 20) that supplies a composite current comprising the first alternating current (196) and the second alternating current (198) to the coils.

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Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh Lam whose telephone number is (703) 308-7626. The fax phone number for this Group is (703) 305-3431.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0656.



Thanh Lam

Patent Examiner



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